

# Regional Infrastructure: Water



*April 9, 2014*

# Overview

Infrastructure plays a critical role in helping us meet our *Region Forward* goals

## Critical Water Infrastructure

- Drinking water
- Wastewater & Combined Sewer Overflow
- Stormwater



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# Overview

## Purpose of water infrastructure

- Provides water supplies needed by our people and our economy
- Protects the public health
- Protects and restores the quality of our rivers, streams and lakes



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# Wastewater

- 16 collection systems
  - Est. 16,000 miles of pipes
- 19 major wastewater plants
  - 777 million gallons per day (MGD) capacity
- Mix of local governments, authorities, & the federal government
- Over \$1 billion in capital program costs (in 2013)

## COG Region WWTPs - Major Plants (>= 2.0 MGD)



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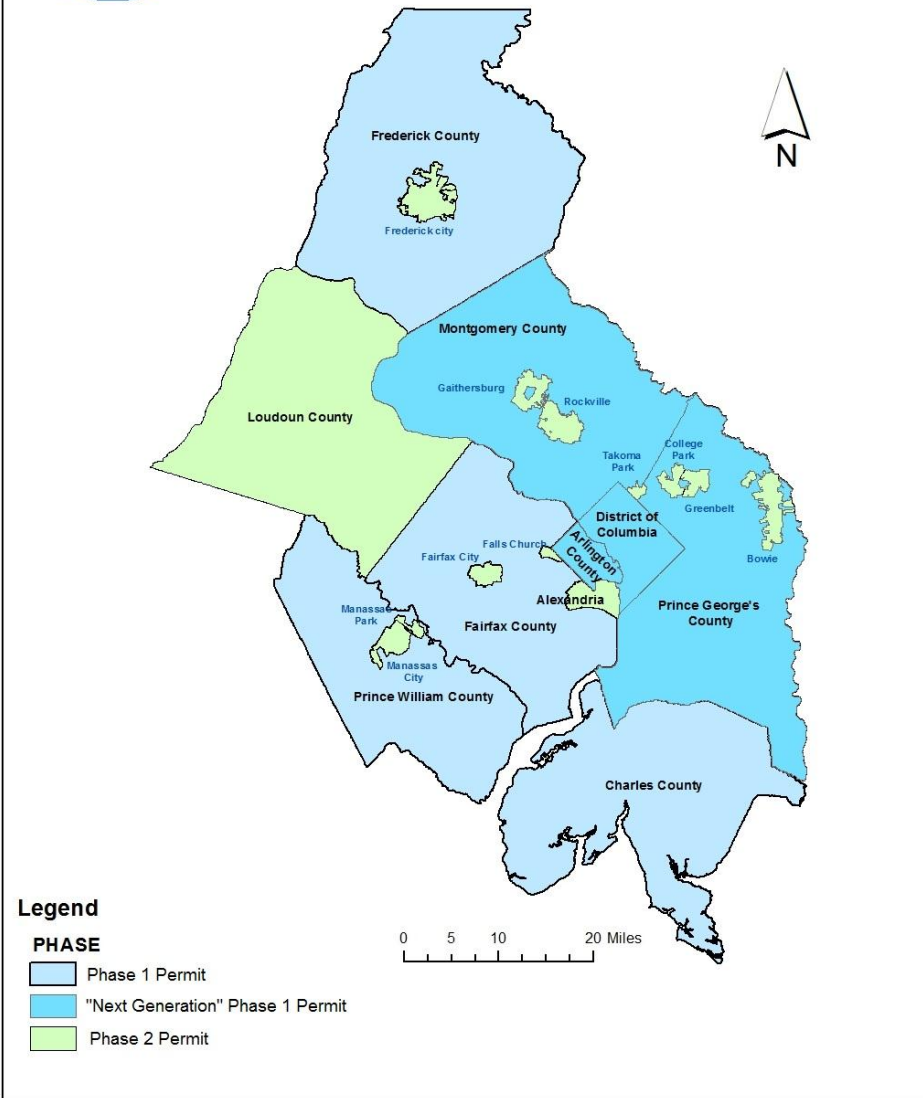
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# Stormwater

- 22 local stormwater management programs
  - Phase I - Larger population municipalities/greater requirements
  - Phase II – Generally smaller population municipalities/less stringent requirements
- Estimated \$10 to 15 Billion costs to meet stormwater requirements



## MS4 Permit Status of COG's Member Jurisdictions



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# Drinking Water

- What are the primary end uses of water?
  - Drinking water
  - Sanitation
  - Firefighting
  - Agriculture (limited in NCR)
  - Industry
  - Losses
- What are the primary sources of water?
  - Surface Waters
  - Groundwater



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# Drinking Water

- Metropolitan Washington Drinking Water at a Glance
  - Average daily water production about 370 million gallons per day (MGD).
  - More than 14,500 miles of water mains.
  - About 114,000 fire hydrants.
  - Over 1,000,000 metered accounts.
  - More than 5,300,000 people served.

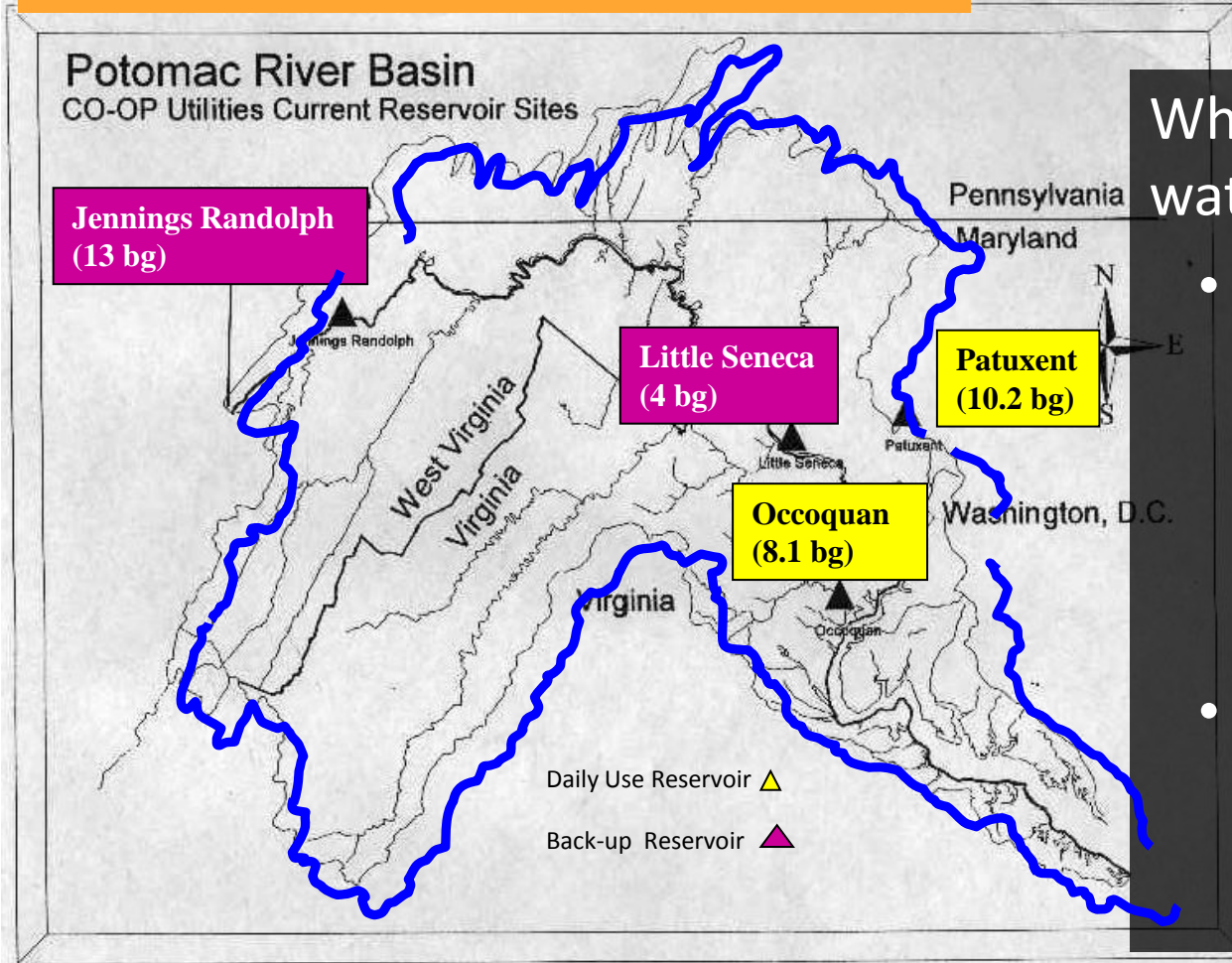


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# Surface Drinking Water Sources



Where do we get our water from?

- Surface water
  - About 4.5 Million people in our region rely on the Potomac River for drinking water
- Reservoirs
  - Two for daily use
  - Two for backup



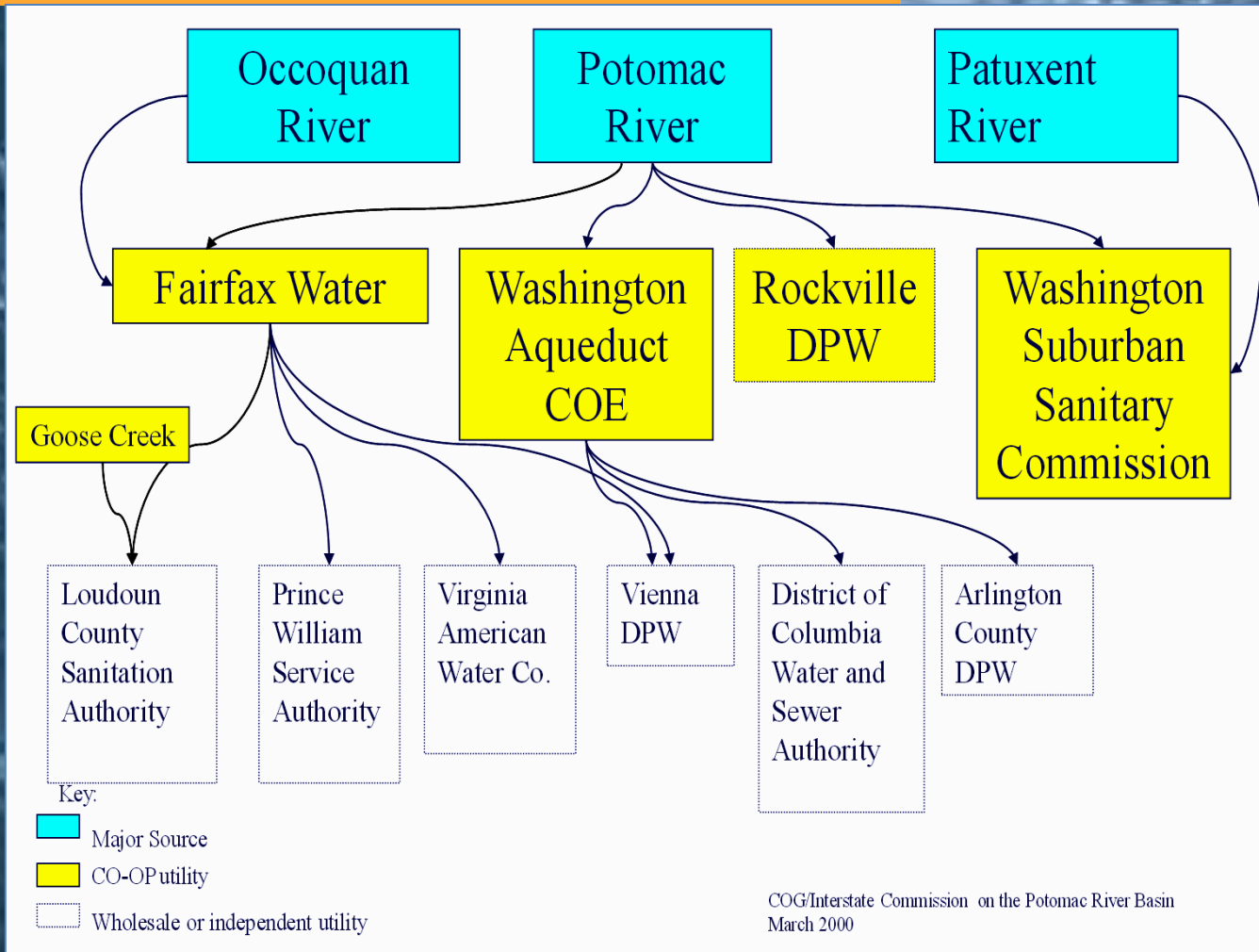
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# Coop Water Supply System Schematic



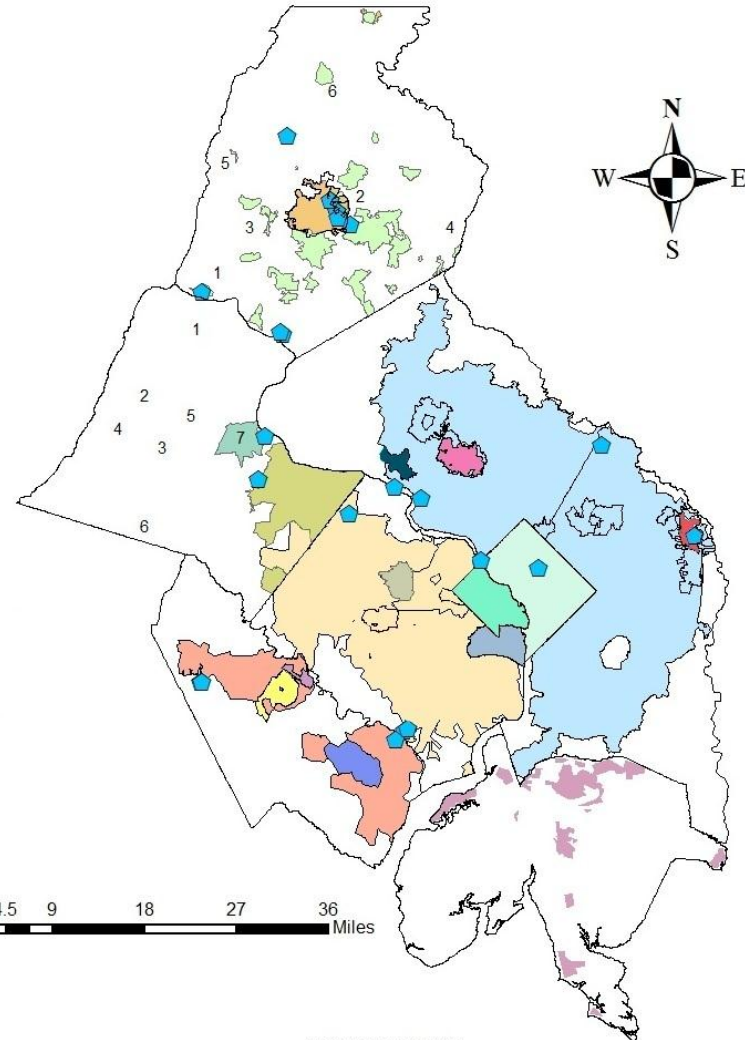
# Drinking Water Providers



## Drinking Water Treatment Plant Service Areas -COG Region-

**Legend**

- Water Treatment Plants
- Drinking Water Suppliers and Distributors**
- City of Bowie Dept. of Public Works
- City of Manassas DU
- City of Manassas Park DPW
- Rockville
- Loudoun County Town Systems
  - 1. Town of Lovettsville
  - 2. Town of Hillsboro
  - 3. Town of Purcellville
  - 4. Town of Round Hill
  - 5. Town of Hamilton
  - 6. Town of Middleburg
  - 7. Town of Leesburg
- Frederick County Utilities and Solid Waste
- City of Frederick
- Frederick County Town Systems**
  - 1. City of Brunswick
  - 2. Fort Detrick
  - 3. Town of Middletown
  - 4. Town of Mt. Airy
  - 5. Town of Myersville
  - 6. Town of Thurmont
- Fairfax Water
- Loudoun County Sanitation Authority
- Prince William County Service Authority
- Virginia-American Water Company
- Virginia-American Water Company - Alexandria
- Vienna DPW
- Washington Aqueduct U.S. Army Corp of Engineers (COE)**
  - Arlington DPW
  - District of Columbia
- Washington Suburban Sanitary Commission - Current area
- Washington Suburban Sanitary Commission - Potential area
- Charles PWS
- Areas served by private systems



-I:WRTC/DW & WW Maps



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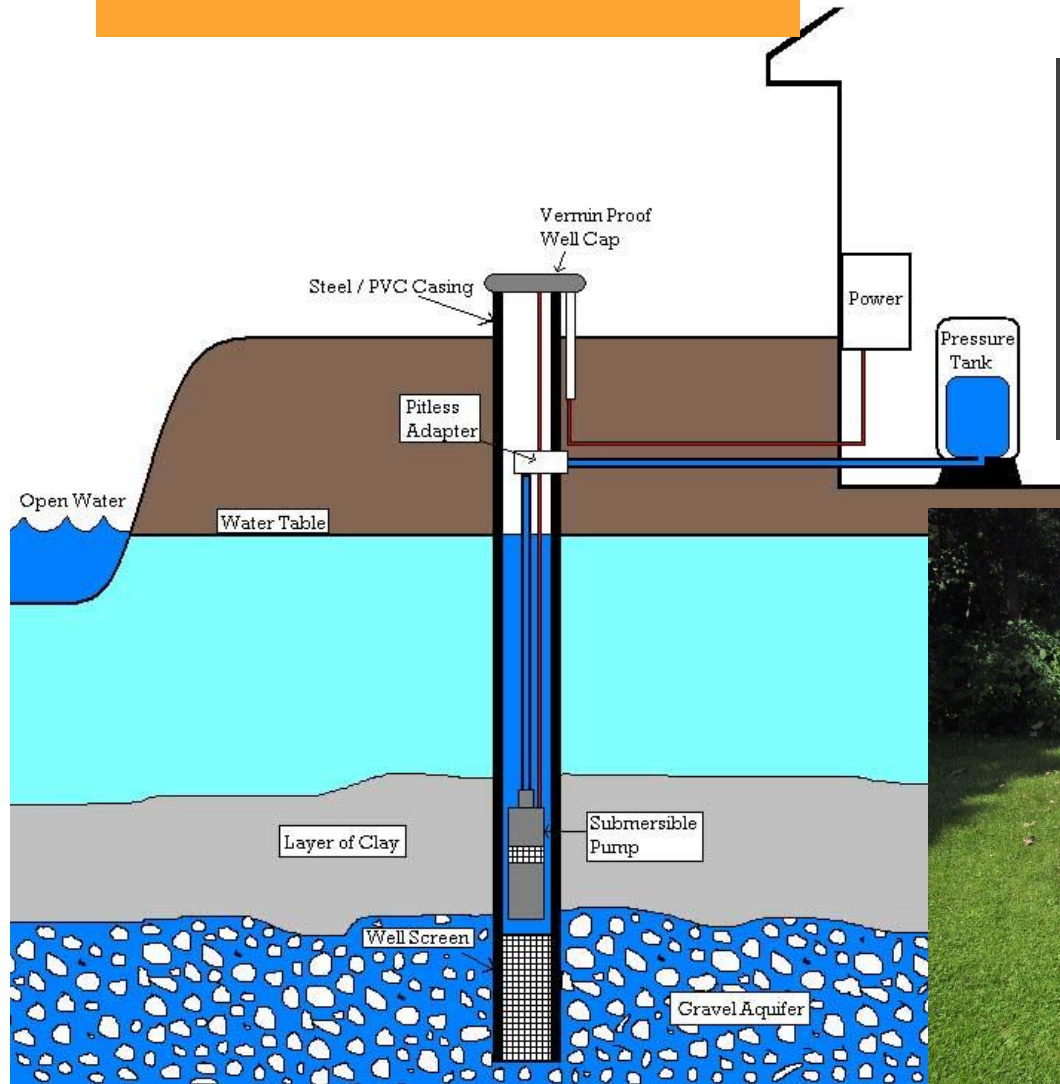


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# Groundwater Sources

## Other Supplies

- Groundwater wells
- Community systems
- Individual users



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# Drinking Water

- Who controls / regulates
  - Supply
    - Regional Water Supply Coordination Agreement (1982)
    - Technical assistance from ICPRB
  - Quality
    - U.S. EPA Region 3
    - Maryland Department of the Environment
    - Virginia Department of Health
- Water reuse & reclamation



## Drinking Water

- System Value
  - Capital investment – about \$1.5B per year
  - Operation and Maintenance budget – about \$1.3B per year



# Regional Water Security



- What are the threats?
  - Drought
  - Petroleum pipelines and storage facilities
  - Accidental spills
  - Combined Animal Feeding Operations
- Most potential threats are outside of the region



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# Regional Water Security

- How are we prepared?
  - Regional Drinking Water Monitoring Network
  - Exercises and Training
  - Regional Water Supply Emergency Plan
  - Source Water Assessments
  - Mutual Aid - NCRWARN



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# Challenges & Opportunities

- Aging Infrastructure
- Reducing Demand, Rate Design & Revenues
- Future Water Supply Needs
  - New Infrastructure
    - Expanding system
    - Additional reservoir/storage
- Conservation
- Asset Management



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## Challenges & Opportunities

- Drinking Water Quality
  - Meeting Federal Standards
  - Bottled Water
- Unregulated Contaminants
  - Chemicals
  - Endocrine Disrupting Compounds
- Intentional and Accidental Contamination



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# Issues & Best Practices

- Water infrastructure and land use
  - Local Land use
    - Limits to growth
    - System expansion
  - Source water protection



# Issues & Best Practices

- Workforce
- Interdependencies
  - Energy & water
  - Development; Dig once
- Communications, outreach & messaging



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# COG Support Activities

- Drinking Water
  - Drought plan, source water protection, supply/demand planning, & water conservation
- Wastewater
  - Regional water quality assessments, coordination on wastewater issue, & Blue Plains coordination support
- Stormwater
  - Permitting & regulatory coordination, & watershed restoration)



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